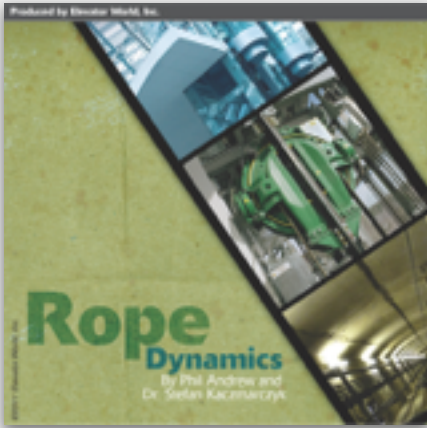


# Rope Dynamics Presentation



1.0 contact hours credit  
(.1 CEUs)



## Approved by:

- ◆ National Association of Elevator Contractors for CET®/CAT®
- ◆ NAESA for QEI
- ◆ States of: Alabama, Florida, Georgia, Kentucky, Pennsylvania, Virginia, Washington and West Virginia

## Program Materials

This course is based on the Rope Dynamics Presentation (DVD) by Dr. Stefan Kaczmarczyk and Phil Andrew, which can be purchased separately from Elevator World. The presentation is approximately 60 minutes in length.

### Rope Dynamics Presentations

This presentation discusses the purpose of analyzing the dynamic behavior of the roping system and how Hamilton's Principle and classical mechanics may be employed to derive the dynamic equations, which describe the oscillatory motions of the ropes. The resulting partial differential equations are presented in order to explain how lateral and longitudinal oscillations in the suspension system are, in point of fact, cross coupled, so that a lateral oscillation of the ropes can initiate longitudinal vibrations, and vice versa. Finally, by means of an example, the presentation shows how transient vibrations may arise at particular locations in the elevator travel, highlights why such rope oscillation and vibration is so difficult to eliminate, and notes some of the solutions to the problem that have been proposed in the past.

**Cost of DVD: \$30.00 (non subscriber) or \$25.50 (EW subscribers)**

**Cost of the exam is \$30 (non subscriber) and \$25.50 (EW subscriber)**

**Purchase both and SAVE \$5**

## Learning Objectives & Curriculum

- How transient vibrations arise
- Why rope vibrations often occur at particular positions in the hoistway
- Why, when considering transient rope vibration, even a high-speed elevator may be treated as if it were stationary
- Why lateral rope vibrations may give rise to longitudinal vibration and vice versa
- Why transient rope vibration may be very difficult to eliminate

## Course Specifics

- Applicants will be allowed one free retake of the exam. Subsequent retakes will be \$25.00 each.
- The test will consist of 15 questions.
- The testing company is **Exambuilder.com**. All testing will be on its server, and Elevator World will be charged for each person taking the exam. A database of persons taking the test, along with their scores and dates, will be kept at Exambuilder.com and at Elevator World. All pertinent information will be kept in a database for a minimum of seven years.
- After the test is taken, the student will be able to determine immediately if he or she passed or failed. **A passing score is 80%.** A follow-up e-mail will be sent by Elevator World confirming the test score and setting up retakes if needed. A certificate of completion can be printed by the candidate.

## Instructor Qualifications/Bio

**Dr. Stefan Kaczmarczyk** is currently Reader in Engineering Science at the University of Northampton. He has been serving on the Institute of Physics Applied Mechanics Group Committee and initiated and developed a series of international conferences linking the U.K. and overseas-based academic and industrial research groups working in the area of mechanics of slender structures, with particular emphasis on applications in elevator engineering. Dr. Kaczmarczyk joined the elevator engineering group at the University of Northampton as a senior lecturer in 2002. In 2003, he became the course leader for MSc Lift Engineering, then postgraduate field leader for Lift Engineering. Dr. Kaczmarczyk has published over 70 journal and international conference papers in the area of vertical transportation and elevator engineering.

### Provider Information

Elevator World, Inc. is the largest publisher in the world devoted to the elevator industry: publishing a monthly journal; compiling the Elevator World SOURCE®, the most inclusive directory in the industry; publishing numerous books used for industry education; maintaining ELENET, a biweekly email newsletter; and developing the Elevator World online network, a group of specialized websites with more than 70,000 users a month. Elevator World is the publisher and distributor of the print-based materials for the four-year Certified Elevator Technician (CET) Education Program. The company is 62 years old and has played a key role in the transfer of knowledge in the vertical-transportation industry.

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